

**Test Report**  
**Single Event Transient Testing of ACT8601**  
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## Introduction

A test was conducted to determine whether the ACT8601 dual voltage regulator is sensitive to single event transients when exposed to a beam of heavy ions. The concern arises from the fact that the part contains two voltage regulators – RH117 negative voltage regulator and RH137 positive voltage regulator. Previous testing by JPL has revealed that the LM117 (the same function as the RH117 but a different manufacturer) exhibits very long transients – on the order of seconds – that could pose a severe problem for a project. Initial testing, performed by GSFC using the pulsed laser facility at NRL, failed to reveal any long transients. In fact all transients were small ( $< 200$  mV) and of short duration ( $< 1$   $\mu$ s). Because there is some lingering concern about the validity of the pulsed laser results for bipolar parts due to the junctions being at different depths, it was deemed prudent to perform heavy ion testing to determine the worst-case transients.

## Test Circuit

The ACT8601 was configured as shown in figure 1. The inputs were  $\pm 12$  Volts and the nominal outputs were  $+9$ V for the RH137 and  $-9$ V for the RH117.

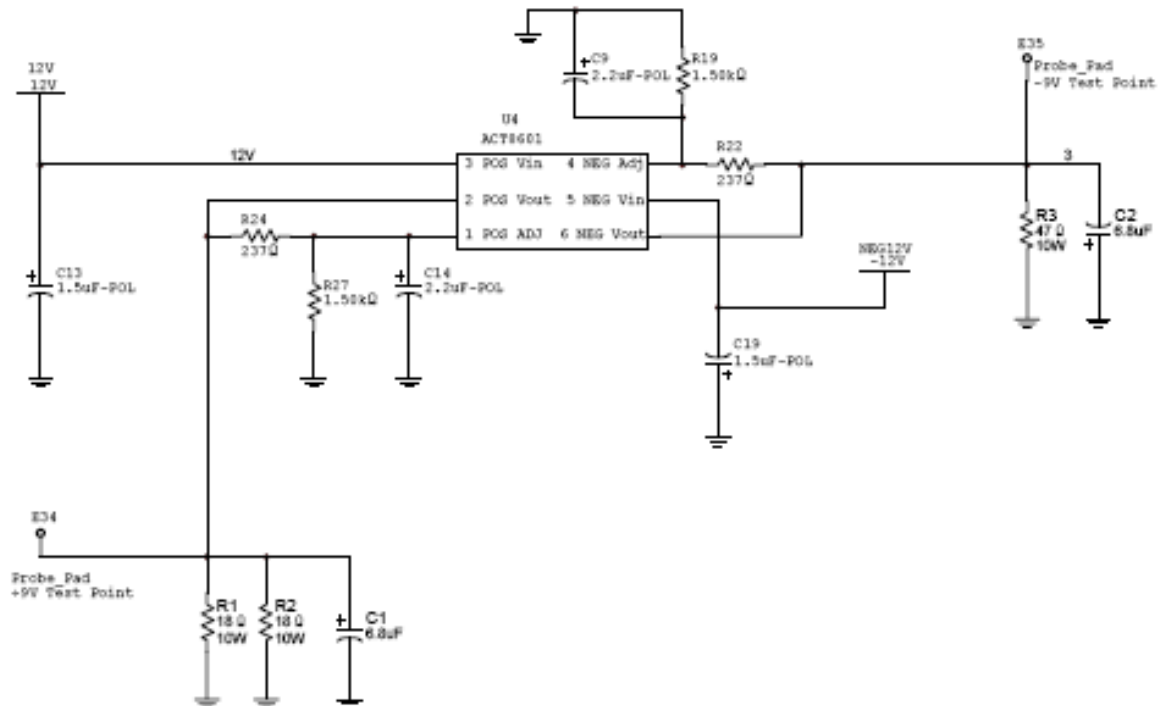


Fig. 1. ACT8601 test circuit.

## Test Procedure

A de-lidded part was mounted on a heat sink attached to a perforated circuit board. One connection was made to the output of the RH117 and the other was attached to the output of the RH137. The trigger levels were set at 150 mV away from the DC output level, i.e., 4.15 V for positive transients and 3.85 V for negative transients. The ion flux was set at about 1,000 particles/sec to ensure that transients did not overlap. The part was exposed to the ion listed in Table I.

Table I.

<b>Ion</b>	<b>Energy (MeV)</b>	<b>LET (MeV.cm<sup>2</sup>/mg)</b>
Xe	1360	58.72

## Test Results

No destructive events were observed at an LET of 59 MeV.cm<sup>2</sup>/mg. No transients were measured at an LET of 59 MeV.cm<sup>2</sup>/mg.